REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed October 6, 2008, The Examiner is thanked for the thorough examination of the present application. Upon entry of this response, claims 1-27 are pending in the present application. Applicants respectfully request consideration of the following remarks contained herein. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

I. Response to Claim Rejections Under 35 U.S.C. § 103

The USPTO has the burden under section 103 to establish a *prima facie* case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquires, also expressed in MPEP §2141, are as follows:

(A) Determining the scope and contents of the prior art;

(B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations.

For a proper rejection of the claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements / features of the claim at issue. See, e.g., *In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981). Claims 1-8, 11 and 17-23 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter et al.* (U.S. Pub. No. 2003/0035374, hereinafter "*Carter*") in view of *Patel et al.* (U.S. Pat. No.

7,126,913, hereinafter "*Patel*") further in view of *Aukia et al.* (U.S. Pat. No. 6,594,268, hereinafter "*Aukia*")[1]. Claim 16 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter* in view of *Patel* and in further view of *Lee et al.* (U.S. Pat. No. 7,349,403, hereinafter "*Lee*"). Claims 9-10, 12-15, and 24-27 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter* in view of *Patel* and in further view of *Gracon et al.* (U.S. Pat. No. 6,987,732, hereinafter "*Gracon*") and *Lee*[2]. For at least the reasons set forth below, Applicants traverse the rejections set forth.

A. Independent Claim 1

Applicants respectfully submit that independent claim 1 patently defines over *Carter*, in view of *Patel*, further in view of *Aukia* for at least the reason that the combination fails to disclose, teach, or suggest the features emphasized below in claim 1.

Claim 1 recites:

> 1. An egress rate controller monitoring content traffic transmitted from an edge network node of a packet-switched communications network node comprising:
> a. a leaky bucket having an initial maximum number of tokens which decreases as packets are received in an associated output buffer at a reception token rate for transmission, ***wherein a size of the leaky bucket is less than or equal to a size of the associated output buffer***;
> b. a plurality of token availability threshold level registers specifying a corresponding plurality of token amounts defining token availability regions; and

[1] Page 3 of the Office Action states that Claims 1-8, 11 and 16-23 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter* et al. (U.S. Pub. No. 2003/0035374, hereinafter "*Carter*") in view of *Patel* et al. (U.S. Pat. No. 7,126,913, hereinafter "*Patel*") further in view of *Aukia* et al. (U.S. Pat. No. 6,594,268, hereinafter "*Aukia*"). Based on the discussion that follows, however, Applicants will assume that the Examiner intended to reject claims 1-8, 11, and 17-23. Claim 16 is separately rejected on page 11 of the Office Action.

[2] Page 14 of the Office Action states that claims 9-10, 12-16 and 25-27 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter* in view of *Patel* and in further view of *Gracon* et al. (U.S. Pat. No. 6,987,732, hereinafter "*Gracon*") and *Lee*. Based on the discussion that follows, Applicants will assume that the Examiner meant to reject claims 9-10, 12-15, and 24-27 in view of these references.

> c. a packet transmission suppression controller selectively suppressing transmission of a packet having a traffic class association based on a current token availability level being within a token availability region specifying transmission suppression of packets of the traffic class.

(Emphasis added). In rejecting claim 1 under 35 U.S.C. §103(a), the Office Action now relies on the *Aukia* reference to allegedly disclose the feature emphasized above in claim 1. In particular, the Office Action refers to the leaky bucket regulator with QoS provisioning commitments for the "leaky bucket" and the buffer section (205) for the "associated output buffer." Applicants respectfully traverse the rejection.

Aukia teaches of incorporating a "leaky bucket regulator" based on QoS provisioning commitments and that the QoS provisioning commitments may be associated with a class field value. With reference to Table 2, *Aukia* teaches that exemplary QoS provisioning commitments associated with a Class field are given for a router including a leaky bucket regulator. *Aukia* further specifies that the values for the fields shown in Table 2, such as rate, bucket, delay and loss of a leaky bucket regulator, may be related to the bandwidth available on specified links. (Col. 8, lines 11-13). Regarding the buffer section (205), *Aukia* teaches that packets received from the input link interface are queued for processing in the buffer section (205). *Aukia* further teaches that the buffer section may include buffers allocated to each input port. Packet classifier (203) contains one or more packet filters determining filter rules to be applied to each received packet. Based on the filter rules, route allocation processor 206, which may simply be a cross-bar switch, redirects the packet from the buffer section 205 to one or more corresponding output ports of the output link interface 207. Output link interface 207 may define one or more output ports, and may comprise transmit

sections of one or more line termination cards that terminate at least one transmission line. (Emphasis added; col. 10, lines 10-23).

Applicants respectfully submit that nowhere does *Aukia* disclose or suggest the size of the leaky bucket being less than or equal to a size of the associated output buffer. Stated another way, nowhere does *Aukia* disclose or suggest the size of the leaky bucket being less than or equal to the size of the buffer section (205). Referring back to Table 2 in *Aukia*, the "rate (r)" represents an average rate of the packet flow in bytes per second, or may be a token refresh rate for the leaky bucket regulator. Nowhere, however, does *Aukia* disclose or suggest a leaky bucket having an initial maximum number of tokens which decreases as packets are received in an associated output buffer at a reception token rate for transmission, wherein a size of the leaky bucket is less than or equal to a size of the associated output buffer. Furthermore, the *Carter* reference and the *Patel* reference fail to address this deficiency.

Accordingly, Applicants respectfully submit that independent claim 1 patently defines over the combination for at least the reason that the combination fails to disclose, teach, or suggest the highlighted features in claim 1 above. Furthermore, Applicants submit that dependent claims 2-8 are allowable for at least the reason that these claims depend from an allowable independent claim. *See, e.g., In re Fine*, 837 F. 2d 1071 (Fed. Cir. 1988).

B. Independent Claim 16

Applicants respectfully submit that independent claim 16 patently defines over *Carter*, in view of *Patel*, further in view of *Lee* for at least the reason that the combinations fail to disclose, teach, or suggest the features emphasized below in claim 16.

Claim 16 recites:

> 16. A method of effecting egress rate control comprising the step of:
> selectively suppressing packet transmission for a packet of a particular traffic class when a current token availability level of a leaky bucket tracking packet transmissions is between two token availability threshold levels of a plurality of token availability threshold levels, ***wherein the token availability threshold levels correspond to predetermined egress rate control responses to bandwidth utilization with respect to packet traffic classes***.

(Emphasis added). The Office Action now relies on the *Lee* reference to allegedly disclose the feature emphasized above in claim 16. In particular, the Office Action equates the feature above with "*determining whether 'average usage of a class to which a flow belongs' is equal to, less than, or greater than a minimum/maximum threshold. [Figs. 1-2]"* as taught by *Lee*. (Office Action, page 14). The Office Action further refers to the accepting or discarding of packets with respect to minimum/maximum threshold levels and drop probability. Applicants respectfully traverse the rejection.

FIG. 1 in *Lee* depicts Moore's law versus the demand for Internet bandwidth, and FIG. 2 shows the processing and context switching that occur in a prior art RISC processor performing networking functions. *Lee* further discloses a method that includes determining: whether average usage of a class to which the flow belongs is less than or equal to a maximum threshold; if the average usage is greater than the

maximum threshold, then marking the information element with a first mark value; if the average usage is less than or equal to the maximum threshold, then determining whether the average usage is less than or equal to a minimum threshold; if the average usage is greater than the minimum threshold, then marking the information element with a second mark value; and if the average usage is less than or equal to the minimum threshold, then marking the information element with a third mark value. (*Lee*, Summary of the Invention). While *Lee* indeed discloses a series of comparisons involving average usage and various thresholds, this is not equivalent to token availability threshold levels that correspond to predetermined egress rate control responses to bandwidth utilization with respect to packet traffic classes. Claim 16 explicitly recites "token availability threshold levels" in addition to "predetermined egress rate control responses." Applicants respectfully submit that these elements are not taught by *Lee*. The token availability threshold levels are used in the context of leaky bucket tracking packet transmissions ("when a current token availability level of a leaky bucket tracking packet transmissions is between two token availability threshold levels"). Even assuming, for the sake of argument, that the minimum and maximum thresholds cited in the Office Action correspond with the token availability threshold levels in claim 16, *Lee* fails to disclose or suggest "predetermined egress rate control responses." The "packet mode" in col. 32, lines 52-53 of *Lee* is described as ingress or egress of the C-P (cell-to-packet), P-P (packet-to-packet), and P-C (packet-to-cell) modes. This, however, is not equivalent to the predetermined egress rate control responses as used in claim 16: "wherein the token availability threshold levels correspond to *predetermined egress rate control responses* **to bandwidth utilization with respect to packet traffic**

classes." Furthermore, the *Carter* reference and the *Patel* reference fail to address this deficiency.

Accordingly, Applicants respectfully submit that independent claim 16 patently defines over the combination for at least the reason that the combination fails to disclose, teach, or suggest the highlighted features in claim 16 above. Furthermore, Applicants submit that dependent claims 17-23 are allowable for at least the reason that these claims depend from an allowable independent claim.

C. Independent Claim 9

Applicants respectfully submit that independent claim 9 patently defines over *Carter*, in view of *Patel*, further in view of *Gracon* and *Lee* for at least the reason that the combinations fail to disclose, teach, or suggest the features emphasized below in claim 9.

Claim 9 recites:

> 9. An ingress rate controller monitoring content traffic received at an edge network node of a packet-switched communications network node comprising:
> a. a leaky bucket having an initial maximum number of tokens which decreases as packets received at a reception token rate are accepted;
> b. a plurality of token availability threshold level registers specifying a corresponding plurality of token amounts defining token availability regions;
> ***c. a plurality of packet discard probability registers, each packet discard probability register specifying a probability with which packets of a specific traffic class are to be dropped when a current token availability level is within a token availability region***, and
> d. a packet acceptance controller selectively randomly discarding packets having a traffic class association based on the current token availability level being within a token availability region specifying random packet discard of packets of the traffic class.

(Emphasis added). The Office Action alleges that *Lee* discloses the feature emphasized above. In doing so, the Office Action refers to the registers 211 depicted in FIG. 2 and to the "drop probability" disclosed by *Lee* in FIG. 37 and to col. 56, lines 22-55, among other text passages. *Lee* teaches of drop probability used in determining whether to discard a packet. *Lee* further teaches that the information element is discarded based on a drop probability and that the drop probability is calculated according to the equation: drop probability=((average 'information segment storage unit' occupancy-minimum number of occupied 'information segment storage unit' rows)/G)*(I)." (Col. 56, lines 43-47). *Lee*, however, fails to disclose or suggest "each packet discard probability register specifying a probability with which packets of a specific traffic class are to be dropped when a current token availability level is within a token availability region," as recited in claim 9. That is, *Lee* fails to disclose or suggest the registers (211) specifying a probability with which packets of a specific traffic class are to be dropped when a current token availability level is within a token availability region. FIG. 2 shows the processing and context switching occurring in a prior art RISC processor performing networking functions. *Lee* teaches that processes (205) and (207) depicted in FIG. 2 use a common set of registers (211) to store information specific to that process. Nowhere does *Lee* appear to teach that the registers (211) are related to the drop probability described later in the disclosure. As such, Applicants respectfully submit that *Lee* fails to disclose or suggest the feature emphasized above in claim 9. Furthermore, the *Carter*, *Patel*, and *Gracon* references fail to address this deficiency.

Accordingly, Applicants respectfully submit that independent claim 9 patently defines over *Carter* for at least the reason that *Carter* fails to disclose, teach, or suggest the highlighted features in claim 9 above. Furthermore, Applicants submit that dependent claims 10, 12-15 are allowable for at least the reason that these claims depend from an allowable independent claim.

D. Independent Claim 24

Applicants respectfully submit that independent claim 24 patently defines over *Carter*, in view of *Patel*, further in view of *Gracon* and *Lee* for at least the reason that the combination fails to disclose, teach, or suggest the features emphasized below in claim 24.

Claim 24 recites:

> 24. A method, of effecting ingress rate control comprising the step of:
> selectively randomly discarding packets of a particular traffic class when a current token availability level of a leaky bucket tracking packets is between two token availability threshold levels of a plurality of token availability threshold levels, ***wherein the token availability threshold levels correspond to predetermined ingress rate control responses to bandwidth utilization with respect to packet traffic classes***.

(Emphasis added). The Office Action relies on the *Lee* reference to disclose the feature emphasized above in claim 24. While claims 24 and 16 are not coextensive in scope, Applicants rely on arguments similar to those set forth above for claim 16. The Office Action equates the feature above with "*determining whether 'average usage of a class to which a flow belongs' is equal to, less than, or greater than a minimum/maximum threshold. [Figs. 1-2]"* as taught by *Lee*. (Office Action, page 23). The Office Action further refers to the accepting or discarding of packets with respect to

minimum/maximum threshold levels and drop probability. Applicants respectfully traverse the rejection.

As discussed above, FIG. 1 in *Lee* depicts Moore's law versus the demand for Internet bandwidth, and FIG. 2 shows the processing and context switching that occur in a prior art RISC processor performing networking functions. While *Lee* indeed discloses a series of comparisons involving average usage and various thresholds, this is not equivalent to token availability threshold levels that correspond to predetermined ingress rate control responses to bandwidth utilization with respect to packet traffic classes. Claim 24 explicitly recites "token availability threshold levels" in addition to "predetermined ingress rate control responses." Applicants respectfully submit that these elements are not taught by *Lee*. The token availability threshold levels are used in the context of leaky bucket tracking packet transmissions ("when a current token availability level of a leaky bucket tracking packets is between two token availability threshold levels of a plurality of token availability threshold levels"). Even assuming, for the sake of argument, that the minimum and maximum thresholds cited in the Office Action correspond with the token availability threshold levels in claim 24, *Lee* fails to disclose or suggest "predetermined ingress rate control responses." The "packet mode" in col. 32, lines 52-53 of *Lee* is described as ingress or egress of the C-P (cell-to-packet), P-P (packet-to-packet), and P-C (packet-to-cell) modes. This, however, is not equivalent to the predetermined egress rate control responses as used in claim 24: "wherein the token availability threshold levels correspond to *predetermined ingress rate control responses* **to bandwidth utilization with respect to packet traffic**

classes." Furthermore, the *Carter*, *Patel*, and *Gracon* references fail to address this deficiency.

Accordingly, Applicants respectfully submit that independent claim 24 patently defines over the combination for at least the reason that the combination fails to disclose, teach, or suggest the highlighted features in claim 16 above. Furthermore, Applicants submit that dependent claims 25-27 are allowable for at least the reason that these claims depend from an allowable independent claim.

E. Dependent Claims 11 and 17-23

Claims 11 and 17-23 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Carter* in view of *Patel* further in view of *Aukia*. Claim 11 depends from claim 9, and claims 17-23 depend from claim 16. As set forth above, independent claim 9 is patentable over the combination of *Carter*, *Patel*, *Gracon*, and *Lee*. Applicants submit that the *Aukia* reference fails to address the deficiencies expressed above for these references. Accordingly, claim 9 is believed to be patentable over the combination of *Carter*, *Patel*, and *Aukia*. Dependent claim 11 is thus allowable for at least the reason that this claim depends from an allowable independent claim. As discussed above, claim 16 is patentable over the combination of *Carter*, *Patel*, and *Lee*. Applicants submit that the *Aukia* reference fails to address the deficiencies expressed above for these references. As such, claim 16 is believed to be patentable over *Carter*, *Patel*, and *Aukia*. Dependent claims 17-23 are allowable for at least the reason that these claims depend from an allowable independent claim.

CONCLUSION

Applicants respectfully submit that all pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 50-0835.

Respectfully submitted,

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